

An Assessment of STD Methods and Practice in the Northern Plains States

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Abstract

The Northern Plains Consortium comprised of the states of Montana, North Dakota, South Dakota and Wyoming, as part of a National Laboratory System Cooperative Agreement, designed and administered an electronic survey to clinical laboratories to assess the status of Chlamydia (CT), gonorrhea (GC) and syphilis testing in rural/frontier laboratories and to promote adherence to testing and reporting standards. In addition, Montana evaluated the completeness of reporting of CT and GC to the MT STD MIS system from a healthcare system that used an electronic medical record (EMR).

The survey response rate between the 4 states was 77% (217/281) which included state public health laboratories. Most laboratories refer all their testing; 79.2% refer out all CT testing, 65.0% refer out all GC testing, and 63.6% refer out all syphilis testing. Of the laboratories performing in-house testing, 11/32 (34.3%) perform amplification tests for CT, and 10/57 (17.5%) for GC. In the four states, disease reporting is the responsibility of both the laboratory and the healthcare provider. Of the laboratories performing in-house testing, only 46.9% (CT), 56.1% (GC), and 26.8% (syphilis) responded correctly to a question about reporting responsibility.

In Montana, for the period 2005-06, 873 cases of CT were documented in the healthcare system's EMR, but only 585 cases (67%) were present in the STD MIS database. For GC, 47 cases were documented in the EMR, but only 27 (57%) recorded in the STD MIS database. Conversely, an additional 334 CT cases and 23 GC cases in persons served by the healthcare system were identified in the STD MIS database, but were not documented in the EMR. In total, cases were more likely to be reported when testing was performed at the Montana Public Health Laboratory as opposed to reference laboratories. These findings support the concerns for the under-reporting of STDs.

Background

Sexually transmitted diseases (STDs) remain a major public health challenge in the United States. CDC estimates that approximately 19 million new infections occur each year—almost half of them among young people 15 to 24 years of age. Reported cases of chlamydia and gonorrhea in the United States exceeded 1.4 million in 2007. These diseases continue to be the most commonly reported infectious diseases in the nation and pose persistent and preventable threats to fertility in the United States.¹ Appropriate laboratory testing practices are a critical part of the efforts to reduce the prevalence and consequences of STDs in the United States.²

The vision of a National Laboratory System was described in 1998 in a publication entitled *The U.S. Needs a National Laboratory System*.³ A National Laboratory System would ensure the availability of consistent laboratory capacity for public health across the nation⁴. As part of a National Laboratory System Cooperative Agreement initiative, the states of Montana, North Dakota, South Dakota and Wyoming, which share many demographics as the Northern Plains Consortium, designed and administered an electronic survey to clinical laboratories to assess the status of Chlamydia (CT), gonorrhea (GC) and syphilis testing in rural/frontier laboratories and to promote adherence to testing and reporting standards. Indian Health Service and Tribal laboratories and laboratories serving urban Native Americans were of special interest, as this population shares a disproportionate burden of sexually transmitted diseases. Gaps identified through the assessment would be addressed by promoting adherence to testing and reporting standards, to ultimately reduce disease burden.

Concerns exist that CT, GC and syphilis are under-reported to public health departments. In a separate initiative to evaluate the completeness of reporting, Montana compared CT and GC data contained in a healthcare system's electronic medical record (EMR) to those cases reported to the state public health department and recorded in the state STD Management Information System (MIS) database. In addition, the initiative described CT and GC cases reported to the Montana Dept of Public Health and Human Services (DPHHS), but not recorded in the healthcare system's EMR.

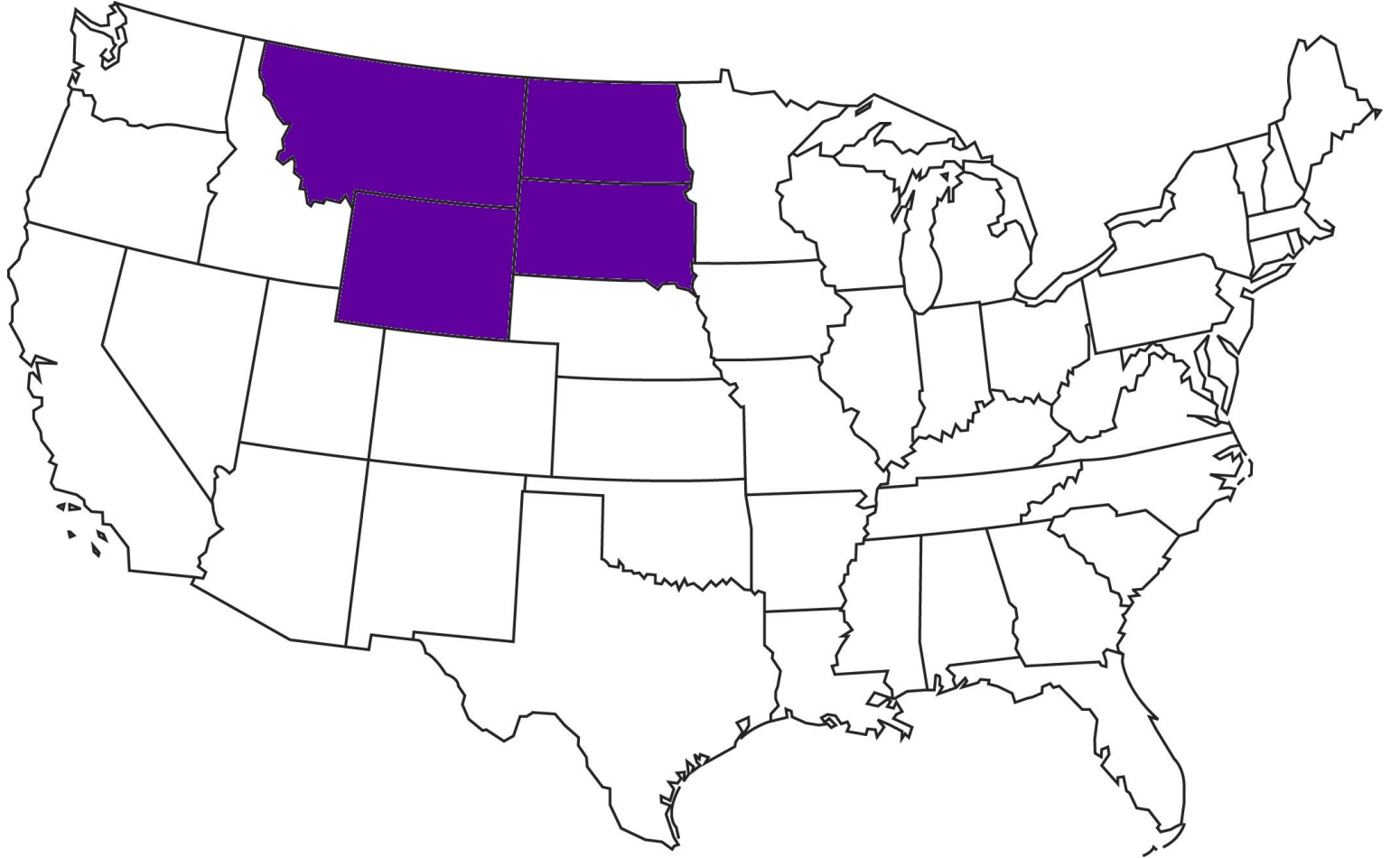
Materials and Methods

Based on a survey conducted in 2004 in public health laboratories², an electronic survey was developed in Survey Monkey (www.surveymonkey.com). In addition to standard demographics, the survey assessed referral patterns of clinical laboratories, the type of test used and the approximate volume of testing, awareness of guidelines and reporting regulations, perceived training needs, interaction with state public health laboratories, and preferred methods of training.

Each state administered the survey to clinical laboratories in their state. Survey recipients were identified through Centers for Medicare and Medicaid Services CLIA listings of non-certificate of waiver laboratories, and were selected based on the complexity of testing and the size of the facility. Written and verbal communications with laboratory managers were used to obtain valid e-mail addresses.

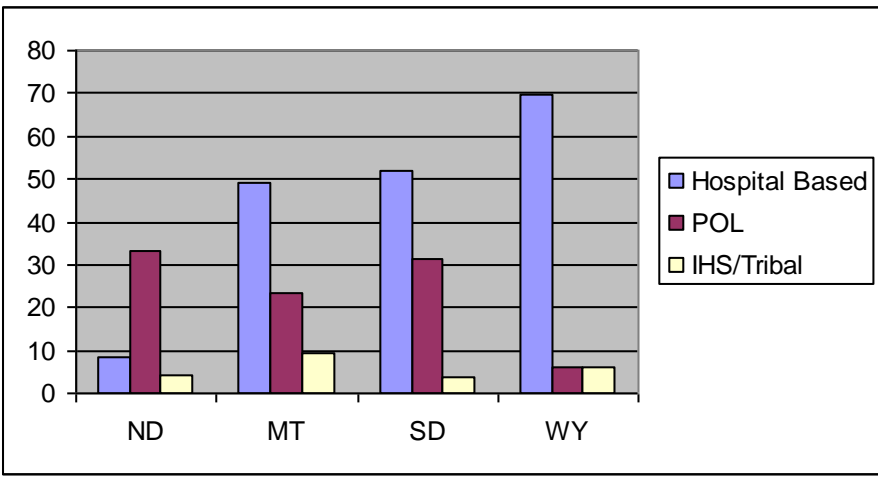
For the initiative to assess the completeness of reporting, through an Institutional Review Board process, confidential data was obtained from a healthcare system's electronic medical record database. Data were extracted based on ICD-10 diagnosis codes and securely provided to the Montana DPHHS. Through a cross-check process, data recorded in the EMS were evaluated and compared to case records reported and present in the Montana STD MIS database. If a person had more than 1 case recorded in the EMS, only cases separated by 8 weeks or more were counted separately. Conversely, cases present in the MT STD MIS system but not in the healthcare system's EMR were identified and described.

Northern Plains Consortium (ND, MT, SD, WY)



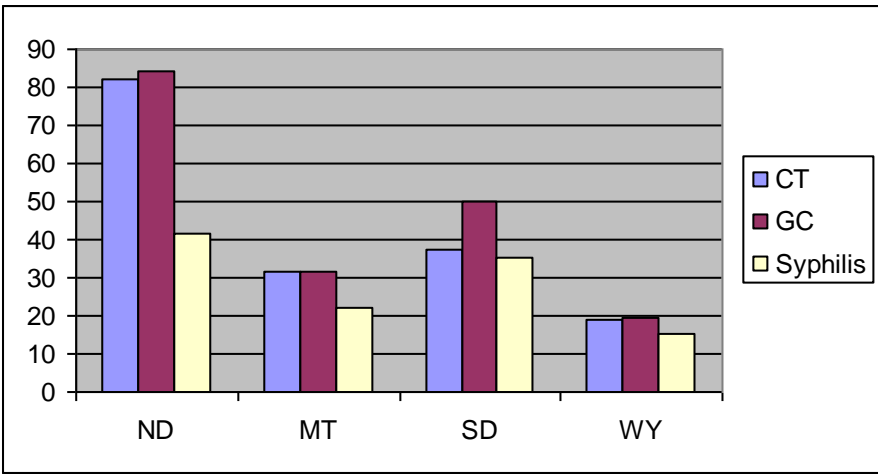
Survey Results

The total survey response rate from all 4 states was 77% (217/281) which included state public health laboratories. The majority of respondents were hospital laboratories (48.4%), followed by physician office laboratories (24%). Indian Health Service or Tribal laboratories comprised 6.9% of the respondents.



Of those responding, percentage of Hospital Based, POL and IHS/Tribal Laboratories, by state

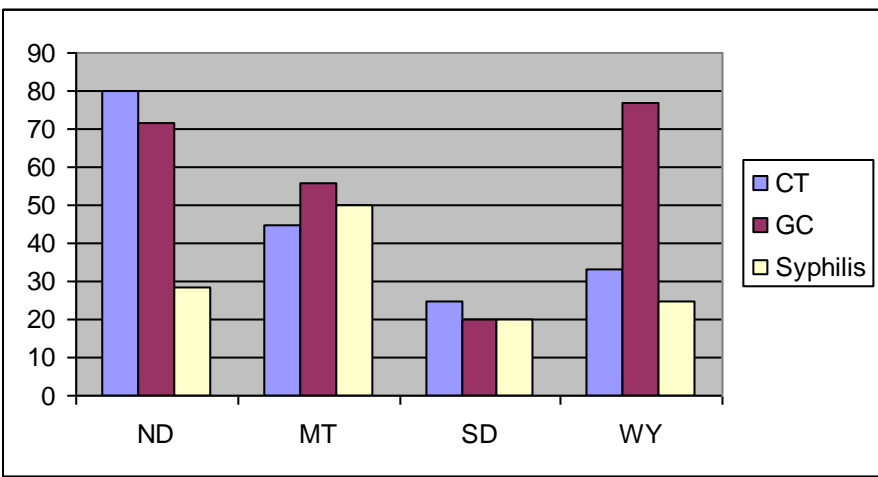
Most laboratories refer all their testing; 79.2% refer out all CT testing, 65.0% refer out all GC testing, and 63.6% refer out all syphilis testing. Laboratories in the 4 state region are more likely to refer this public health testing to private and commercial laboratories. Although there is state variation, only 37% of responding laboratories refer their CT specimens to public health laboratories in the Consortium, 39% refer their GC and 25% refer their Syphilis testing.



Percentage of Laboratories that Refer Specimens to their Public Health Laboratory, by state

Of the laboratories performing in-house testing, 11/32 (34.3%) perform amplification tests for CT, and 10/57 (17.5%) for GC. Other methods offered include culture, EIA, DFA, nucleic acid probe and point of care tests.

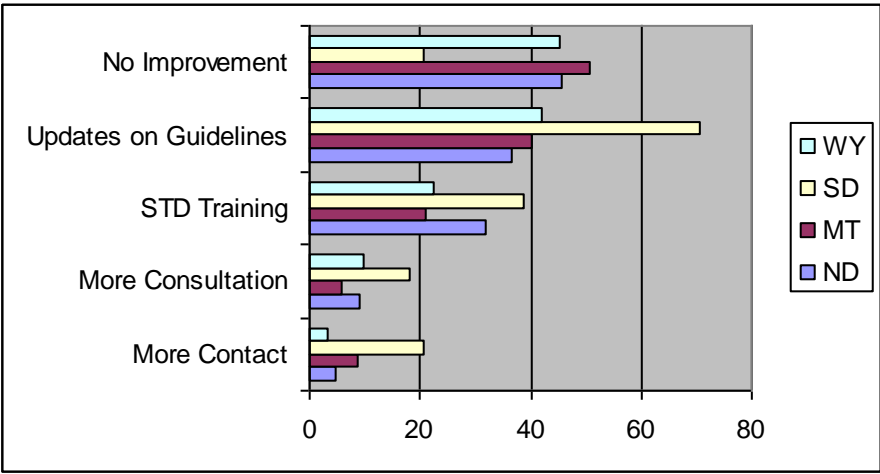
In the four states, a positive syphilis specimen must be referred to the state by statute, yet only 19.5% of laboratories performing in-house testing responded correctly. Also in statute, disease reporting is the responsibility of both the laboratory and the healthcare provider. Of the laboratories performing in-house testing, only 46.9% (CT), 56.1% (GC), and 26.8% (syphilis) responded correctly to a question about reporting responsibility.



Percentage of In-House Testing Laboratories Correctly Identifying Reporting Requirements, by State

Survey Results (continued)

Interactions of clinical laboratories with their Public Health Laboratory regarding STDs were assessed. Clinical laboratories look to their state Public Health Laboratories to provide STD training and updates on STD testing guidelines.



Assessment of Interactions with state Public Health Laboratories, by state

Completeness of Reporting Results

In Montana, for the period 2005-06, 873 cases of CT were documented in the healthcare system's EMR, but only 585 cases (67%) were present in the STD MIS database. Conversely, an additional 334 CT cases in persons served by the healthcare system were identified in the STD MIS database, but were not documented in the EMR.

Table 1. Chlamydia Cases reported to the MT STD Program, cases identified in EMR but not reported, and completeness of reporting from EMR in 2005-2006, Montana

Reported Cases	All # (%)	Median Age (range) in years	Males # (%)
EMR	585 (42)	22 (2 – 66)	158 (42)
Healthcare System, not in EMR	334 (24)	23 (9 – 50)	124 (33)
Non-Healthcare System providers	459 (33)	22 (16 – 37)	98 (26)
All Sources	1378 (100)	22 (2 – 66)	380 (100)
Not Reported Cases			
EMR	288 (100)	24 (3 – 72)	117 (100)
Increase in case ascertainment if all EMR cases had been reported			
	21% (288/1378)		31% (117/380)
Completeness of reporting of EMR cases			
	67% (585/873)		57% (158/275)

For GC, 47 cases were documented in the EMR, but only 27 (57%) recorded in the STD MIS database. Conversely, an additional 23 GC cases in persons served by the healthcare system were identified in the STD MIS database, but were not documented in the EMR.

Table 2. Gonorrhea Cases reported to the MT STD Program, cases identified in EMR but not reported, and completeness of reporting from EMR in 2005-2006, Montana

Reported Cases	All # (%)	Median Age (range) in years	Males # (%)
EMR	27 (34)	20 (16 – 36)	10 (42)
Healthcare System, not in EMR	23 (29)	19 (16 – 20)	5 (21)
Non-Healthcare System providers	30 (38)	19 (17 – 42)	9 (38)
All Sources	80 (100)	19 (16 – 42)	24 (100)
Not Reported Cases			
EMR	20 (100)	23 (17 – 46)	15 (100)
Increase in case ascertainment if all EMR cases had been reported			
	25% (20/80)		63% (15/24)
Completeness of reporting of EMR cases			
	57% (27/47)		40% (10/25)

Discussion

The percent of CT and GC tests performed by clinical laboratories or referred to commercial reference laboratories has been steadily increasing over the last decade², and this data supports that practice. Fewer laboratories are referring to public health laboratories, although the volume of testing referred to commercial reference laboratories in the Northern Plains Consortium has not been evaluated. This trend emphasizes the need for a state public health laboratory system⁵ where public-private partnerships are developed between clinical laboratories and public health to foster quality laboratory services and public health surveillance.

Appropriate testing and reporting practices for STDs are a crucial part of the efforts to control and prevent these diseases, but testing patterns can also affect our ability to monitor trends in the prevalence of STDs. Monitoring testing practices in the broader clinical laboratory community, especially those serving American Indian/Alaska Natives (AI/AN), and enhancing continued surveillance efforts for these diseases through interventions that include targeted training are needed to stem the increase in STDs.

The findings of the MT EMR initiative support the concerns for the under-reporting of STDs, especially since Montana and the other states in the Northern Plains consortium still rely heavily on a paper reporting system. There has been recent emphasis on the electronic exchange of health information, and the automatic transfer of STD data from the clinical or reference laboratory directly into the state public health department database. This interface system should facilitate the identification of more cases, which would initiate appropriate follow up and adequate treatment with the goal of reducing STD morbidity.

Conclusions

- ✓ The majority of clinical laboratories in the Northern Plains Consortium region refer out or do not offer STD testing for CT, GC or syphilis.
- ✓ Much of this referral testing is referred to commercial or private reference laboratories, not public health.
- ✓ The responsibility for reporting STDs and referring isolates/specimens to public health departments is not well understood.
- ✓ Clinical laboratories look to their public health laboratories to provide STD training and updates on guidelines.
- ✓ The completeness of reporting of both CT and GC is problematic, even when an EMR is used.
- ✓ Cases of CT and GC were more likely to be reported when testing was performed at the Montana Public Health Laboratory as opposed to reference laboratories.

References

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* *The Healthcare EMR system described in the completeness of reporting initiative is the Billings Area Indian Health Service RPMS database.*